

**REMARKS**

These amendments and remarks are in response to the Office Action dated May 5, 2008. Applicant requests a three-month extension of time and authorization is given to charge Deposit Account No. 50-0951 for the appropriate fees.

In the Office Action, claims 1-4 and 7 were rejected under 35 U.S.C. §102(b). Claims 5 and 6 were rejected under 35 U.S.C. §103(a). The rejections are discussed in more detail below.

**I. Rejections to the claims based upon Art**

Claims 1-4 and 7 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,769,220 to Zardi ("Zardi"). Claims 5 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Zardi* in view of U.S. Patent No. 5,035,867 to Dang Vu et al. The claims are believed to be patentable over these references.

*Zardi* is concerned with a chemical reactor of the so-called adiabatic type, in which no heat is removed from or supplied to the catalytic bed when the chemical reaction occurs. Heat exchange between the reaction mixture and a heating or cooling fluid only occurs outside the catalytic beds, in particular before or after them. That is after the chemical reaction in the respective catalytic bed has taken place. This is, for instance, clearly shown in figure 1 of *Zardi*, in which the tube bundle heat exchangers EX1-3 are placed outside the catalyst beds C1-C3. According to the disclosure and teaching of *Zardi*, no heat is removed during the radial flow of the gas through the catalytic beds (i.e. during the passage of the gas from the inlet to the outlet perforated walls defining the catalytic beds, where the gas is changed into reaction gas and thus heated due to the exothermic reaction). The reactor of *Zardi* is thus not suitable and cannot operate in pseudo-isothermal conditions.

Contrary to the adiabatic reactor of *Zardi*, in a pseudo-isothermal reactor, the cooling/heating fluid exchanges heat with the reaction mixture at the same time the reactants of the reaction mixture react (i.e. during the chemical reaction itself). To this aim, the heat exchangers are placed within the catalytic bed (i.e. reaction zone) as clearly indicated in present claim 1.

U.S. Patent Appln. No. 10/541,431  
Amendment  
Response to Office Action dated May 5, 2008

Docket No. 9526-60

Moreover, claim 1 has been amended in order to specify that the plurality of heat exchangers is supported in the respective catalytic bed of each reaction zone. This limitation is already present in claim 7.

It follows that *Zardi* does not disclose all the features of present claim 1, which is thus novel over *Zardi*. *Zardi* is concerned with a reactor of totally different conception, both from the structural and functional point of view, if compared to the chemical reactor of the present claims.

Thus, the subject matter of claim 1 is patentable over the cited art. Similar arguments apply to independent claim 7, and also apply to dependent claims 2-6. All claims are thus believed to relate to patentable subject matter, and to be in condition for allowance.

## II. Conclusion

Applicant has made every effort to present claims which distinguish over the prior art, and it is thus believed that all claims are in condition for allowance. Nevertheless, Applicant invites the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicant respectfully requests reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

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